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Mouse Recombinant VEGF-164

Vascular endothelial growth factor

Catalog #78102	20 µg
Catalog #78102.1	100 µg
Catalog #78102.2	1000 µg

Product Description

Vascular endothelial growth factor (VEGF) is a heparin-binding homodimeric glycoprotein involved in vasculogenesis and angiogenesis. VEGF binds to FLT1 (VEGFR-1) and KDR (VEGFR-2), and activates Raf/MEK/ERK and PI3K/AKT pathways (Ferrara et al.). VEGF exists in multiple isoforms that result from alternative splicing of VEGF mRNA in the terminal exon. Proximal splice-site selection in exon 8 results in proangiogenic VEGFxxx isoforms (xxx is the number of amino acids), whereas distal splice-site selection results in anti-angiogenic VEGFxxxb isoforms (Nowak et al.). VEGF plays an important role in neurogenesis both in vitro and in vivo (Storkebaum et al.). It has neurotrophic effects on neurons of the central nervous system, and it promotes growth and survival of dopaminergic neurons and astrocytes. VEGF also promotes growth and survival of vascular endothelial cells, monocyte chemotaxis, and colony formation by granulocyte-macrophage progenitor cells (Ferrara et al.). Various splice variants of VEGF exist, with different functions. For example, it has been shown that VEGF isoform VEGF-164(165) and not VEGF-120 (121) induces inflammation, stimulates intracellular adhesion molecule (ICAM)-1 expression on endothelial cells, and induces chemotaxis of monocytes (Usui et al.).

Product Information

Alternative Names: MGC70609, MVCD1, Vascular endothelial growth factor 2, Vascular endothelial growth factor A, Vascular permeability factor, Vasculotropin, VEGFA, VPF

Accession Number: Q00731-1

Amino Acid Sequence: MAPTTEGEQK SHEVIKFMDV YQRSYCRPIE TLVDIFQEYP DEIEYIFKPS CVPLMRCAGC CNDEALECVP TSESNITMQI MRIKPHQSQH IGEMSFLQHS RCECRPKKDR TKPENHCEPC SERRKHLFVQ DPQTCKCSCK NTDSRCKARQ LELNERTCRC DKPRR

Predicted Molecular Mass: 19.4 kDa

Species: Mouse

Product Formulation: Lyophilized after dialysis against HEPES and sodium chloride, pH 7.

Source: P. pastoris

Purity: ≥ 97 %

Specifications

Activity: The specific activity is ≥ 1.7 x 10^5 units/mg (EC50 ≤ 6 ng/mL), as determined by a cell proliferation assay using human umbilical vein endothelial cells (HUVECs).

Endotoxin Level: Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/µg protein.

Preparation and Storage

Stability and Storage: Store at -80°C. Stable as supplied for 12 months from date of receipt.

Preparation: Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.

OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -20°C for more than 6 months. Avoid repeated freeze-thaw cycles.

Data

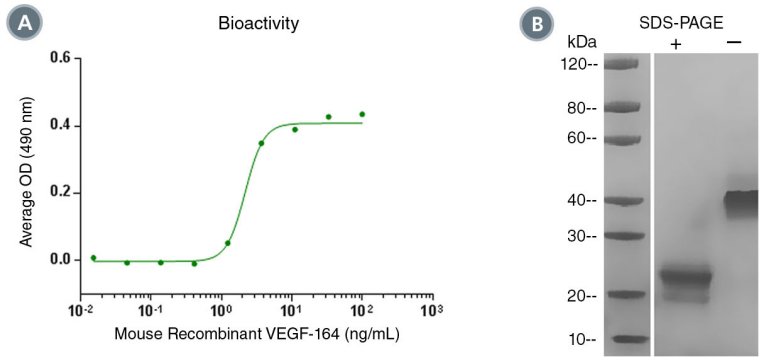

Figure 1. Biological Activity and Molecular Mass of Mouse Recombinant VEGF-164

(A) Biological activity of Mouse Recombinant VEGF-164 was tested by its ability to promote the proliferation of HUVECs. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 in the above example is 2.14 ng/mL.
(B) 2 µg of Mouse Recombinant VEGF-164 was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Mouse Recombinant VEGF-164 has a predicted molecular mass of 19.4 kDa.

Related Products

For a complete list of cytokines or peptide pools, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines, or contact us at techsupport@stemcell.com.

References

Ferrara N et al. (2003) The biology of VEGF and its receptors. Nat Med 9(6): 669–76.
Nowak DG et al. (2008) Expression of pro- and anti-angiogenic isoforms of VEGF is differentially regulated by splicing and growth factors. J Cell Sci 121(Pt 20): 3487–95.
Storkebaum E et al. (2004) VEGF: once regarded as a specific angiogenic factor, now implicated in neuroprotection. Bioessays 26(9): 943–54.
Usui T et al. (2004) VEGF164(165) as the pathological isoform: differential leukocyte and endothelial responses through VEGFR1 and VEGFR2. Invest Ophthalmol Vis Sci 45(2): 368–74.